

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 24 and 27-46 are pending in the present application, Claim 24 having been amended by way of the present amendment. Support for amendments to the claims can be found in the disclosure as originally filed, at least in page 18, lines 15-19. Thus, no new matter is added.

In the outstanding Office Action, Claims 24, 27-40 and 43 were rejected under 35 U.S.C. §103(a) as unpatentable over Zinky et al. (U.S. Patent No. 6,480,879, hereinafter Zinky) in view of Shastri (U.S. Pat. Pub. No. 2002/0065922).

Addressing now the rejection of Claim 24, 27-40 and 43 under 35 U.S.C. §103(a) as unpatentable over Zinky and Shastri, this rejection is respectfully traversed.

Amended Claim 24 recites, in part,

...a finite state machine associated with a User Context, a finite state machine associated with an Application Context nested in said finite state machine associated with said User Context and a finite state machine associated with a Session Context nested in said finite state machine associated with said Application Context,

wherein said User Context, said Application Context and said Session Context each identify an arrangement of quality-of-service specifications enforceable through a set of streams belonging to a given user, multimedia application and telecommunication session, respectively, the given user partaking in the given telecommunication session by means of executing the given multimedia application,

wherein said middleware derives quality-of-service specifications of an Application Context from the quality-of-service specifications of the nesting User Context and quality-of-service specifications of a Session Context from the quality-of-service specifications of the nesting Application and Session Contexts, and

wherein said arrangements of quality-of-service specifications identified in said User Context, said Application Context and said Session Context are specified by said multimedia applications using said application programming interface.

Zinky describes a system that determines a quality of service and regulates activity in a distributed system based on the determined quality of service. Further, Zinky discloses a measurement of actual QoS.<sup>1</sup>

Shastri describes a system in which a client automatically switches servers. Further, Shastri describes that a server is selected based on a comparison of the actual QoS provided by a current server with the estimated QoS of an alternate server. In one embodiment, Shastri describes selecting a server with an estimated QoS that is better than the actual QoS of the current server. In an alternate embodiment Shastri describes that a new server is selected only if the QoS of the current server is below some predetermined threshold.

However, the combination of Zinky and Shastri does not describe or suggest that said middleware derives quality-of-service specifications of an Application Context from the quality-of-service specifications of the nesting User Context and quality-of-service specifications of a Session Context from the quality-of-service specifications of the nesting Application and Session Contexts, as is recited in Claim 24.

In the claimed invention, a User Context, an Application Context and a Session Context each identify an arrangement of quality-of-service specifications enforceable through a set of streams belonging to a given user, multimedia application and telecommunication session, respectively. Thus, separate quality-of-service specifications are defined for a user, a multimedia application and a telecommunication session.

Shastri discloses a user establishing an on-line session with a multimedia server for the purpose of downloading and playing streaming content with player software.<sup>2</sup> The outstanding Action asserts that the user, the on-line session and player software of Shastri

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<sup>1</sup> See Zinky, c. 6, l. 18-21 or the "provided replicas system condition" described in c.6, 1.62 to c.7, 1.57.

<sup>2</sup> See Shastri, [0061].

corresponds to the user, multimedia application and telecommunication session of the claimed invention, respectively.

However, Applicants note that different quality-of-service specifications for the user, the application and the session are not mentioned at all in either Zinky or Shastri. In addition, with regard to the quality-of-service, Shastri does not make any distinction between user, application and session. Instead, Shastri discloses only a single threshold value (i.e. a single QoS specification) which equivalently relates to session, user and application.<sup>3</sup> Therefore, the combination of Zinky and Shastri does not teach or suggest quality-of-service specifications enforceable through a set streams belonging to a user, quality-of-service specifications enforceable through a set of streams belonging to a multimedia application and quality-of-service specifications enforceable through a set of streams belonging to a telecommunication session.

Moreover, it also follows that the combination of Zinky and Shastri does not teach or suggest the specific nesting structure of the hierarchical finite state machine of the claimed invention. Further, neither Zinky nor Shastri discloses, teaches or suggests that the middleware derives quality-of-service specifications of an Application Context from the quality-of-service specifications of the nesting User Context and quality-of-service specifications of a Session Context from the quality-of-service specifications of the nesting Application and Session Contexts.

In addition, the claimed invention provides significant advantages over systems such as that provided by the combination of Zinky and Shastri. Specifically, in the claimed invention, quality-of-service specifications can be specified by multimedia applications in an efficient way. Because quality-of-service specifications which relate to a set of streams are provided (e.g. the total amount of memory or the average bandwidth used by the given set of

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<sup>3</sup> See Shastri [0066]

streams<sup>4</sup>), the multimedia applications need not control each stream separately in order to obtain the desired quality-of-service specifications relating to the streams of a set of streams as a whole. Especially, separate quality-of-service specifications for streams belonging to a user, multimedia application and telecommunication session, respectively, can be defined. While providing for structure and standardization of the quality-of-service specifications, this three stage hierarchy is still flexible enough to deal with the many aspects of the problem domain. The definition of quality-of-service specifications is facilitated by such Context structure in that the multimedia applications need to define less quality-of-service specifications for the nested quality-of-service contexts because the middleware is adapted to derive quality-of-service specifications of a nested quality-of-service context from the nesting quality-of-service contexts. These advantageous features are not provided by the system of the combination of Zinky and Shastri.

Accordingly, Applicants respectfully submit that Claim 24 and claims depending therefrom, patentably distinguish over Zinky and Shastri considered individually or in combination.

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<sup>4</sup> See p. 17, lines 15-18 and p. 18, lines 9-13 of the present disclosure.

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 24 and 27-46, as amended, is patentably distinguishing over the cited art. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully submitted,

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